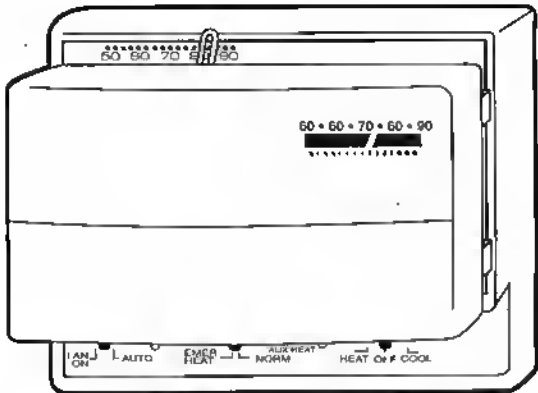


INSTALLATION INSTRUCTIONS



PSMH45
VERSATILE HEAT PUMP
THERMOSTAT

43243 Rev B



SPECIFICATIONS

THERMAL DATA

Temperature Range: 50°F to 90°F (10°C to 32°C)
Differential: Stage 1 Heat – 1¼ °F
Stage 2 Heat – 1 °F
Cooling – 1¼ °F

ELECTRICAL DATA

Switch Rating: 24 volts AC (30 VAC max.)
Stage 1 Heat – 0.2 to 1.2 Amps
Stage 2 Heat – 0.1 to 1.2 Amps
Cooling – 0.2 to 1.0 Amps
Switch Action: Sealed Mercury Switches
Stage 1 Heat & Cool – SPDT
Stage 2 Heat – SPST
Anticipator Rating: Stage 1 Heat – 24 volts AC fixed
Stage 2 Heat – 0.1 to 1.2 Amps adjustable
Cooling – 24 Volts AC fixed

SELECTING THERMOSTAT LOCATION

The proper location of the room thermostat is most important to insure that it will provide a comfortable home temperature. Observe the following general rules when selecting a location:

- 1. Locate it about 5 ft. above the floor with a free flow of air.
- 2. Install it on a partitioning wall, not on an outside wall.
- 3. Never expose it to direct light or radiation from lamps, sun, fireplaces, etc.
- 4. Avoid locations close to doors that lead outside, windows or adjoining outside walls.
- 5. Avoid locations close to radiators, warm air registers, or in the direct path of heat from them or lack of air circulation such as behind doors or in alcoves.
- 6. Make sure there are no pipes or duct work in that part of the wall chosen for the thermostat location.
- 7. Never locate it in a living room that is warmer or cooler than the rest of the home, such as a kitchen or hallway or on the opposite side of the wall of a cold or unused room.
- 8. The living or dining room is normally a good location, provided there is no cooking range or refrigerator on the opposite side of the wall.

SAFETY

This thermostat is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the thermostat to malfunction.

CAUTION: To prevent electrical shock and/or equipment damage, disconnect electric power to the system at main fuse or circuit breaker box until installation is complete.

WARNING: Do not use on circuits exceeding 30 volts. Higher voltage will damage the thermostat and could cause a shock or fire hazard. Do not exceed the specification ratings.

INSTALLATION

- 1. If replacing an existing thermostat, be sure to label the wires before they are removed. This will help with the installation of the new control.
- 2. Remove the cover of the new thermostat by carefully pulling outwards from each corner until it snaps free.
- 3. Carefully remove and discard any packing which protects the thermometer and the mercury switches during shipment.
- 4. If a new location is chosen or if this is a new installation, first run new thermostat cable to the location chosen. All wiring must meet with all applicable local and national electrical codes.
- 5. Check heat pump wiring diagrams for the required number of wires. Use color coded thermostat wire for ease of installation.

ATTACHING THERMOSTAT WIRE

- 1. Pull about 4 inches of thermostat wire through the wall opening and lead through the round opening above the terminal block.
- 2. Strip wires ¼ inch.
- 3. Loosen screws on terminal block but do not remove.
- 4. Place leads into the appropriate holes on the terminal block as designated on the circuit board and tighten the screws securely. (Refer to the wiring diagrams if needed for the appropriate wire location.)
- 5. Push the excess wire into the wall and plug up the hole to prevent drafts from affecting the thermostat operation.

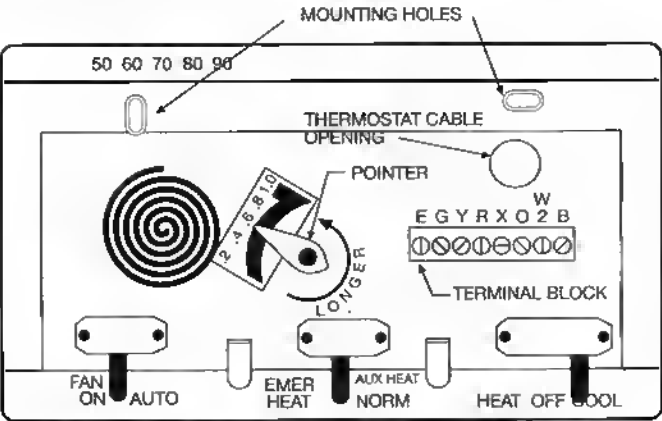


Mt. Laurel, New Jersey, 08054 USA

ATTACHING THERMOSTAT TO WALL

- 1. Attach the thermostat directly to the wall with the screws and wall anchors provided using the two elongated holes at the top of the thermostat.
- 2. Level the thermostat. Use a level placed on top of the thermostat for best results. Minor adjustments can be made using the elongated holes. Securely tighten the mounting screws.

IMPORTANT This thermostat was calibrated at true level. Any inaccuracy in level will cause a control point deviation. Care must be taken to mount the thermostat in a true level position.



HEATING ANTICIPATION

- 1. This thermostat is equipped with fixed anticipators for stage one heat and cooling which do not require adjustment. Stage two heat anticipator must be set to the current draw of the second stage heating component it is controlling times 1.5.
- 2. To determine the correct heat anticipator setting, use a digital AC ammeter by breaking the W2 line and install in line. Or, you may use a split jaw induction type meter and wrap exactly 10 turns of thermostat wire around the center of the jaws.
 - A. With the system power off, connect the ends of the 10 turn loop to terminals R and W2.
 - B. Turn the system power on and read the current on the meter. Divide the reading by 10 to obtain the current draw of the second stage heating component.
 - C. Turn off the system power, remove the coil leads from the thermostat, and move the system switch to OFF.
 - D. Move the anticipator lever to the determined setting.
- 3. Replace the cover.

Additional adjustments, if necessary, may be made as follows:

Heat cycles are too long – Set the adjustable heat anticipator to a slightly lower dial setting (1/2 division).

Heat cycles are too short – Set the adjustable heat anticipator to a slightly higher dial setting (1/2 division).

SYSTEM OPERATION AND CHECKOUT

Use the chart below to check out all functions of your thermostat. It explains the operation of your thermostat with the switches in various positions. After satisfactory check-out, your thermostat is ready for operation. Set system switches to desired operations. Set thermostat temperature lever to the room desired room temperature. It takes at least one hour after the room has reached the thermostat setting for all sensors to stabilize.

NOTE: In heat pump applications, time delays are involved before the compressor can be activated to prevent short-cycling. The delays are provided by a minimum-off-time timer in the heat pump unit which prevents the compressor from starting for up to 5 minutes from when the thermostat last turned the compressor off, or from the time the system first received power.

MAINTENANCE

These thermostats have been carefully adjusted at the factory by trained technical calibrators and should not require recalibration. The thermostats should be properly located and leveled. The thermostat should be allowed to stabilize at room temperature for one hour before checking thermostat calibration. The material thickness between the thermostat base and that of the cover warrants a stabilization period to confirm calibration between the two. A standard thermometer may be used to correlate temperature of the room to that of the thermostat. A few degrees difference between the indicator setting of the thermostat and the actual room temperature is not considered too important.

OPERATION AND SYSTEM CHECKOUT
2-Stage Heat Pump Mechanical Thermostat

SWITCH POSITIONS							SYSTEM FUNCTION							COMPONENT OPERATION
SYSTEM			EMER HEAT		FAN									
COOL	OFF	HEAT	NORM	EMER	AUTO	ON	FAN RELAY	REV VALVE	COMPR CONTRACT	AUX HEAT RELAY	EMER HEAT RELAY	AUX LIGHT	EMER LIGHT	
	■		■		■									No heat, no cooling, no fan, no lights
			■		■		■	O	■		■			Cooling Mode – Compressor contractor and fan relay cycle from thermostat.
■			■		■		■	B	■		■			Heat Mode – Stage 1 Only – Compressor contractor and fan relay cycle from thermostat.
		■	■		■		■	B	■	■	□	■		Heat Mode – Both Stages – compressor contractor, fan relay, auxiliary heat relays, and aux. light on.
		■		■	■		■	B		□	■	□	■	Emer. Heat Mode – Stage 1 Only – fan and emergency heat relay energized. Compressor locked out at thermostat. Emer. light on.
		■		■	■		■	B		■	■	■	■	Emer. Heat Mode – Both Stages – fan, emergency heat and auxiliary heat relays energized. Compressor locked out at thermostat. Emer. and aux. lights on.
						■								fan runs continuously regardless of system switch position.

- Shows position of Switches and corresponding Functions during operation.
- This System Function will operate if a jumper from E to W2 is connected. (Field Option)
- O Reversing valve energized if connected to "O" Terminal
- B Reversing valve energized if connected to "B" Terminal

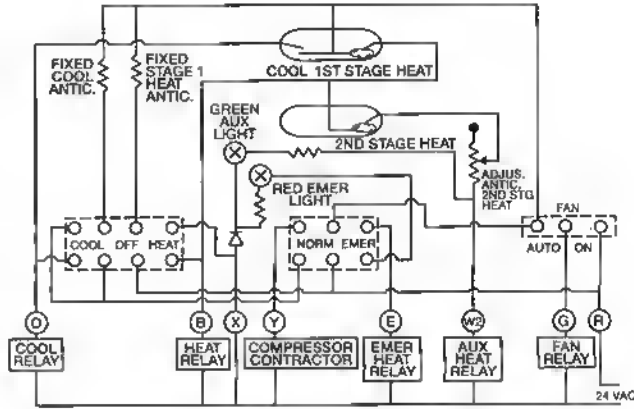
WIRING DIAGRAM
TERMINAL MARKINGS

Typical Connection	Terminal Designation
Heating 1st Stage	Y
2nd Stage	W2
Cooling 1st Stage	Y
Fan	G
Transformer, switched side, single source	R
Transformer, unswitched side, common connection	X
Damper (heat); Reversing Solenoid (heat changeover valve)	B
Damper (cool); Reversing Solenoid (cool changeover valve)	O
Emergency Heat Relay	E

NOTE: The Y terminal activates the first stage HEAT and first stage CDDL.

NOTE: The changeover relay valve can be activated in either the CDDLING or the HEATING mode. By connecting the relay to the "O" terminal, the relay will be activated by moving the system switch to CDDL. By connecting the relay to the "B" terminal, the relay will be activated by moving the system switch to HEAT. Check your owners manual for the appropriate connection for your system.

IMPRTANT: The thermostat must have the "X" terminal (Transformer Common) connected in order for the first stage heat anticipator to work properly.



TECHNICAL SERVICE

If you have any problems installing or using this thermostat, please reread the instructions carefully. Technical Service is available through our Technical Service number. If you require assistance, please call our offices between 8:00 a.m. and 4:30 p.m. Eastern Standard Time, Monday through Friday. The number is (856) 234-8803.

WARRANTY

Limited warranty: If this unit fails because of defects in materials or workmanship within one year of date of original purchase, Lux will, at its option, repair or replace it. This warranty does not cover damage by accident, misuse, or failure to follow installation instructions. Implied warranties are limited in duration to one year from date of original purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Please return malfunctioning or defective units to the participating retailer from which the purchase was made, along with proof of purchase. Please refer to Technical Service section before returning thermostat.

Purchaser assumes all risks and liability for incidental and consequential damage resulting from installation and use of this unit. Some states do not allow for the exclusion of incidental or consequential damages, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary, from state to state. Applicable in the USA only.

RECYCLING NOTICE

This thermostat contains mercury in sealed glass vials. Do NOT dispose of this thermostat in the trash. Neither this thermostat nor any existing mercury thermostat this replaces should be disposed of in the trash. Contact your local waste management authority for proper disposal instructions for mercury in a sealed glass tube.